

=> fil reg

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STRUCTURE FILE UPDATES: 2 AUG 2008 HIGHEST RN 1037774-47-2  
DICTIONARY FILE UPDATES: 2 AUG 2008 HIGHEST RN 1037774-47-2

New CAS Information Use Policies, enter HELP USAGETERMS for details.

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<http://www.cas.org/support/stngen/stndoc/properties.html>

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(FILE 'HOME' ENTERED AT 09:42:29 ON 04 AUG 2008)

FILE 'HCAPLUS' ENTERED AT 09:42:41 ON 04 AUG 2008

L1 1 SEA ABB=ON PLU=ON US20050247670/PN  
SEL RN

FILE 'REGISTRY' ENTERED AT 09:43:12 ON 04 AUG 2008

L2 6 SEA ABB=ON PLU=ON (138495-42-8/BI OR 378-22-3/BI OR  
685-63-2/BI OR 692-50-2/BI OR 72804-49-0/BI OR 7631-86-9/  
BI)  
D SCA

L3 1 SEA ABB=ON PLU=ON PERFLUORO-2-PENTENE/CN

L4 1 SEA ABB=ON PLU=ON L2 AND L3  
D SCA

FILE 'STNGUIDE' ENTERED AT 10:10:15 ON 04 AUG 2008

L5 0 SEA ABB=ON PLU=ON C5F8/CN

FILE 'REGISTRY' ENTERED AT 10:11:56 ON 04 AUG 2008

L6 0 SEA ABB=ON PLU=ON C5F8/CN  
E 1,1,1,4,4,5,5,5-OCTAFLUORO-2-PENTYNE/CN

L7 1 SEA ABB=ON PLU=ON "1,1,1,4,4,5,5,5-OCTAFLUORO-2-PENTYNE  
"/CN  
E 1,1,1,2,4,4,5,5,5-NONAFLUORO-2-PENTENE/CN

L8 1 SEA ABB=ON PLU=ON "1,1,1,2,4,4,5,5,5-NONAFLUORO-2-PENTE  
NE"/CN  
D SCA

E 1,1,1,3,4,4,5,5,5-NONAFLUORO-2-PENTENE/CN  
L9 1 SEA ABB=ON PLU=ON "1,1,1,3,4,4,5,5,5-NONAFLUORO-2-PENTE  
NE"/CN

August 4, 2008

10/520,272

2

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FILE 'HCAPLUS' ENTERED AT 10:19:23 ON 04 AUG 2008
L10      25 SEA ABB=ON  PLU=ON  L7
L11      34 SEA ABB=ON  PLU=ON  L8
L12      41 SEA ABB=ON  PLU=ON  L9
L13      QUE ABB=ON  PLU=ON  GAS## OR GASEOUS?
L14      QUE ABB=ON  PLU=ON  ETCH?
L15      20 SEA ABB=ON  PLU=ON  (L10 OR L11 OR L12) AND L13
L16      13 SEA ABB=ON  PLU=ON  (L10 OR L11 OR L12) AND L14
L17      11 SEA ABB=ON  PLU=ON  L15 AND L16
L18      11 SEA ABB=ON  PLU=ON  (L10 OR L11 OR L12) (L) L13
L19      8 SEA ABB=ON  PLU=ON  L17 AND L18
L20      3 SEA ABB=ON  PLU=ON  L18 NOT L19
L21      5 SEA ABB=ON  PLU=ON  L16 NOT (L19 OR L20)
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=> fil hcap

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FILE 'HCAPLUS' ENTERED AT 10:26:32 ON 04 AUG 2008
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FILE COVERS 1907 - 4 Aug 2008  VOL 149 ISS 6
FILE LAST UPDATED: 3 Aug 2008  (20080803/ED)
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HCAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2008.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l19 ibib abs hitstr hitind 1-8

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L19  ANSWER 1 OF 8  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:    2006:29893  HCAPLUS  Full-text
DOCUMENT NUMBER:     144:119740
TITLE:               Plasma chamber having plasma source coil and
                    method for etching the wafer using the
                    same
INVENTOR(S):         Kim, Nam-Hun
PATENT ASSIGNEE(S):  Adaptive Plasma Technology Corporation, S. Korea
SOURCE:              PCT Int. Appl., 19 pp.
                    CODEN: PIXXD2
DOCUMENT TYPE:       Patent
LANGUAGE:            English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:
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August 4, 2008

10/520,272

3

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006004259	A1	20060112	WO 2005-KR860	20050324
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
KR 2005095135	A	20050929	KR 2004-20321	20040325
EP 1733422	A1	20061220	EP 2005-789424	20050324
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
CN 1934683	A	20070321	CN 2005-80008980	20050324
JP 2007531264	T	20071101	JP 2007-504887	20050324
TW 283026	B	20070621	TW 2005-94109274	20050325
US 20070221622	A1	20070927	US 2006-593857	20060922
PRIORITY APPLN. INFO.:			KR 2004-20321	A
			WO 2005-KR860	W
				20050324

AB A plasma apparatus includes a chamber body, a plasma source coil, and an edge bushing. The chamber body includes a reaction space, which is limited by a sidewall, a lower exterior wall, and an upper dome, and forms plasma. The plasma source coil arranged on the dome includes several unit coils. The unit coils having a predetd. turning number "n" indicative of a pos. integer are extended from a center bushing having a predetd. radius at a center part, and are spirally arranged along a circumference of the center bushing, such that the plasma is formed in the reaction space. The edge bushing arranged between the dome of the chamber body and the plasma source coil, and is configured in the form of a cylindrical shape to overlap with an edge of the wafer arranged in the reaction space.

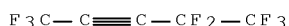
IT 378-22-3

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(etching gas; plasma etching apparatus)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

CC 76-14 (Electric Phenomena)

ST plasma etching app

IT Etching

Etching apparatus

(plasma; plasma etching apparatus)

IT 75-10-5 75-46-7, Trifluoromethane CHF<sub>3</sub> 75-73-0, Carbon fluoride (CF<sub>4</sub>) 76-16-4 76-19-7 115-25-3, Carbon fluoride (C<sub>4</sub>F<sub>8</sub>) 378-22-3 593-53-3, Methyl fluoride 685-63-2

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(etching gas; plasma etching apparatus)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:439007 HCAPLUS Full-text

DOCUMENT NUMBER: 143:123978

TITLE: Adsorption behavior of various fluorocarbon gases on silicon wafer surface

AUTHOR(S): Hidaka, Atsushi; Yamashita, Satoru; Ishii, Hidekazu; Kato, Takeyoshi; Tanahashi, Naoki; Kitano, Masafumi; Goto, Tetsuya; Teramoto, Akinobu; Shirai, Yasuyuki; Ohmi, Tadahiro

CORPORATE SOURCE: Department of Electronic Engineering, Graduate School of Engineering, University of Tohoku, Miyagi, 980-8579, Japan

SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Brief Communications & Review Papers (2005), 44(4B), 2245-2251  
CODEN: JAPNDE

PUBLISHER: Japan Society of Applied Physics

DOCUMENT TYPE: Journal

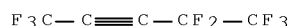
LANGUAGE: English

AB An anal. technique to clarifying the adsorption behavior of a fluorocarbon gas, which is one of the key steps in reactive ion etching, was established. The authors focus on the adsorption behavior of fluorocarbon gases to the silicon wafer surface to clarify the etching mechanism to realize etching to a high aspect ratio. Each fluorocarbon gas had surface selectivity for SiO<sub>2</sub>, Si and the photoresist. Each fluorocarbon gas reacted differently at the silicon wafer surface. As a result, the etching mechanism could be clarified using this newly established anal. technique. Therefore, an etching mechanism will be able to be clarified by applying the newly established anal. technique to the fluorocarbon gases expected to be useful for etching of high aspect ratio and further high performance ultra large scale integrated circuit device must be realized.

IT 378-22-3

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(adsorption behavior of various fluorocarbon gases on silicon wafer surface in reaction ion etching in

integrated circuit fabrication)  
RN 378-22-3 HCAPLUS  
CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 66  
ST fluorocarbon adsorption silicon wafer surface reactive ion  
etching  
IT Adsorption  
Etching  
Integrated circuits  
Photoresists  
Semiconductor device fabrication  
(adsorption behavior of various fluorocarbon gases on  
silicon wafer surface in reaction ion etching in  
integrated circuit fabrication)  
IT Hydrocarbons, properties  
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(fluoro; adsorption behavior of various fluorocarbon  
gases on silicon wafer surface in reaction ion  
etching in integrated circuit fabrication)  
IT 7440-21-3, Silicon, uses 7631-86-9, Silica, uses  
RL: DEV (Device component use); TEM (Technical or engineered  
material use); USES (Uses)  
(adsorption behavior of various fluorocarbon gases on  
silicon wafer surface in reaction ion etching in  
integrated circuit fabrication)  
IT 115-25-3 378-22-3 559-40-0  
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(adsorption behavior of various fluorocarbon gases on  
silicon wafer surface in reaction ion etching in  
integrated circuit fabrication)  
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L19 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:60850 HCAPLUS Full-text  
DOCUMENT NUMBER: 140:102052  
TITLE: Method of dry etching, dry  
etching gas, and process for  
producing perfluoro-2-pentyne  
INVENTOR(S): Yamada, Toshiro; Sugimoto, Tatsuya  
PATENT ASSIGNEE(S): Zeon Corporation, Japan  
SOURCE: PCT Int. Appl., 25 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004008515	A1	20040122	WO 2003-JP9023	

200307  
16

W: CN, KR, US  
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,  
IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR  
JP 2004055680 A 20040219 JP 2002-208604

200207  
17

EP 1542268 A1 20050615 EP 2003-764209

200307  
16

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK  
CN 1669129 A 20050914 CN 2003-816972

200307  
16

TW 288442 B 20071011 TW 2003-92119395

200307  
16

US 20050247670 A1 20051110 US 2005-520272

200501  
14

PRIORITY APPLN. INFO.: JP 2002-208604 A

200207  
17

WO 2003-JP9023

W

200307  
16

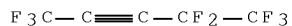
AB A method of dry etching, comprising exposing a resist film to radiation of 195 nm or less wavelength so as to form a resist pattern of 200 nm or less min. line width and subjecting the resist pattern to dry etching using a fluorinated compound of C4-C6 having at least one unsatd. bond as an etching gas. Perfluoro-2-pentyne, perfluoro-2-butyne, nonafluoro-2-pentene and perfluoro-2-pentene are preferably used as the fluorinated compound Perfluoro-2-pentyne can be synthesized by reacting a 1,1,1-trihalo-2,2,2-trifluoroethane with pentafluoropropylene aldehyde into a 2-halo-1,1,1,4,4,5,5,5-octafluoro-2-pentene and eliminating a hydrogen halide from this 2-pentene.

IT 378-22-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(etching gas; dry etching of silicon oxide and resist films by)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST dry plasma etching etchant gas

perfluoro pentyne; silicon oxide resist film etching

IT Resists

(dry etching of silicon oxide and resist films by)

IT Etching

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(dry; dry etching of silicon oxide and resist films by)  
IT Etching  
(etchants; dry etching of silicon oxide and  
resist films by)  
IT Etching  
(plasma; dry etching of silicon oxide and resist films  
by)  
IT 7631-86-9, Silica, processes  
RL: EPR (Engineering process); PEP (Physical, engineering or  
chemical process); TEM (Technical or engineered material use); PROC  
(Process); USES (Uses)  
(dry etching of silicon oxide and resist films by)  
IT 685-63-2, Perfluoro-1,3-butadiene 692-50-2, Perfluoro-2-butyne  
72804-49-0, Perfluoro-2-pentene  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); TEM (Technical or engineered material use); PROC  
(Process); USES (Uses)  
(etching gas; dry etching of  
silicon oxide and resist films by)  
IT 378-22-3P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)  
(etching gas; dry etching of  
silicon oxide and resist films by)  
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L19 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:18200 HCAPLUS Full-text  
DOCUMENT NUMBER: 140:86072  
TITLE: Plasma etching process showing high  
etch rate and selectivity to masks in  
semiconductor device fabrication  
INVENTOR(S): Fujimoto, Motomu  
PATENT ASSIGNEE(S): Tokyo Electron, Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

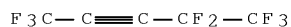
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004006575	A	20040108	JP 2002-228418	200208 06
PRIORITY APPLN. INFO.:			JP 2002-228418	200208 06

AB In the process, etchant gases containing linear C<sub>5</sub>F<sub>8</sub>, preferably  
1,1,1,4,4,5,5,5-Octafluoro-2-pentyne, are used. The process prevents etch  
stop.  
IT 378-22-3  
RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); PROC (Process)  
(plasma etching process showing high etch

rate and selectivity to masks by using ethant gases  
containing linear C5F8 in semiconductor device fabrication)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

CC 76-11 (Electric Phenomena)

ST fluoropentyne ethant plasma etching semiconductor device  
fabrication; silica plasma etching fluoropentyne  
ethant

IT Etching

(etchants; plasma etching process showing  
high etch rate and selectivity to masks by using ethant  
gases containing linear C5F8 in semiconductor device  
fabrication)

IT Noble gases, processes

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); PROC (Process)

(ethant gases; plasma etching process showing  
high etch rate and selectivity to masks by using ethant  
gases containing linear C5F8 in semiconductor device  
fabrication)

IT Semiconductor device fabrication

(plasma etching process showing high etch  
rate and selectivity to masks by using ethant gases  
containing linear C5F8 in semiconductor device fabrication)

IT Etching

(plasma; plasma etching process showing high  
etch rate and selectivity to masks by using ethant  
gases containing linear C5F8 in semiconductor device  
fabrication)

IT 74-82-8, Methane, processes 75-10-5, Difluoromethane 75-46-7,  
Trifluoromethane 75-73-0, Tetrafluoromethane 76-16-4,  
Hexafluoroethane 76-19-7, Octafluoropropane 124-38-9, Carbon  
dioxide, processes 353-50-4, Carbonyl fluoride 593-53-3,  
Fluoromethane 630-08-0, Carbon monoxide, processes 2551-62-4,  
Sulfur hexafluoride 7664-41-7, Ammonia, processes 7727-37-9,  
Nitrogen, processes 7782-41-4, Fluorine, processes 7782-44-7,  
Oxygen, processes 7783-54-2, Nitrogen trifluoride 7783-61-1,  
Silicon tetrafluoride 10024-97-2, Nitrogen oxide (N2O), processes  
10028-15-6, Ozone, processes 10102-03-1, Nitrogen oxide (N2O5)  
10102-43-9, Nitrogen oxide (NO), processes 10102-44-0, Nitrogen  
oxide (NO2), processes 10544-73-7, Nitrogen oxide (N2O3)  
RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); PROC (Process)

(ethant gases; plasma etching process showing  
high etch rate and selectivity to masks by using ethant  
gases containing linear C5F8 in semiconductor device  
fabrication)

IT 378-22-3

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); PROC (Process)

(plasma etching process showing high etch  
rate and selectivity to masks by using ethant gases  
containing linear C5F8 in semiconductor device fabrication)



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IT 7631-86-9, Silica, processes  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)  
 (substrate, etched; plasma etching process  
 showing high etch rate and selectivity to masks by  
 using ethant gases containing linear C5F8 in semiconductor device fabrication)

L19 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2003:778120 HCAPLUS Full-text  
 DOCUMENT NUMBER: 139:269359  
 TITLE: Method of plasma etching  
 INVENTOR(S): Yamaguchi, Tomoyo; Fujimoto, Kiwamu; Kitamura, Akinori; Jy, Jeong; Fuse, Takashi; Obi, Machiko; Wada, Nobuhiro  
 PATENT ASSIGNEE(S): Tokyo Electron Limited, Japan  
 SOURCE: PCT Int. Appl., 19 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

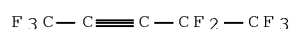
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2003081656	A1	20031002	WO 2003-JP2750	20030307
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2003282540	A	20031003	JP 2002-82717	20020325
AU 2003211846	A1	20031008	AU 2003-211846	20030307
TW 285925	B	20070821	TW 2003-92106060	20030319
US 20050101140	A1	20050512	US 2004-949366	20040927
PRIORITY APPLN. INFO.:			JP 2002-82717	A 20020325
			WO 2003-JP2750	W 20030307

AB A method of plasma etching is described, which comprises introducing a gas containing 1,1,1,4,4,5,5,5-octafluoro-2-pentyne into a treatment chamber, and forming a plasma of the gas to thereby subject a SiO<sub>2</sub> coating film in an article to be treated being present in the treatment chamber to plasma etching through a pattern having openings of a photoresist mask placed on the coating film. The method can be used for carrying out plasma etching with high selection ratio of the coating film to the photoresist and/or with the suppression of etching-stop phenomenon.

IT 378-22-3  
RL: NUU (Other use, unclassified); USES (Uses)  
(C5F<sub>8</sub>, plasma etching gas; method of plasma etching of silica using 1,1,1,4,4,5,5,5-octafluoro-2-pentyne)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

CC 76-11 (Electric Phenomena)

ST plasma etching silica perfluoro pentyne

IT Etching  
(plasma; method of plasma etching of silica using 1,1,1,4,4,5,5,5-octafluoro-2-pentyne)

IT Etching  
(selective; method of plasma etching of silica using 1,1,1,4,4,5,5,5-octafluoro-2-pentyne)

IT 378-22-3  
RL: NUU (Other use, unclassified); USES (Uses)  
(C5F<sub>8</sub>, plasma etching gas; method of plasma etching of silica using 1,1,1,4,4,5,5,5-octafluoro-2-pentyne)

IT 7631-86-9, Silica, processes  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(method of plasma etching of silica using 1,1,1,4,4,5,5,5-octafluoro-2-pentyne)

IT 7440-37-1, Argon, uses 7782-44-7, Oxygen, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(method of plasma etching of silica using 1,1,1,4,4,5,5,5-octafluoro-2-pentyne)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:377195 HCAPLUS Full-text

DOCUMENT NUMBER: 138:361441

TITLE: Gases for plasma reactions and process for producing and using gases thereof

INVENTOR(S): Sugawara, Mitsuru; Yamada, Toshiro; Sugimoto, Tatsuya; Tanaka, Kimiaki

PATENT ASSIGNEE(S): Zeon Corporation, Japan

SOURCE: PCT Int. Appl., 33 pp.  
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

August 4, 2008

10/520,272

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FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
WO 2003041148	A1	20030515	WO 2002-JP11360	20021031
W: CN, KR, RU, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
JP 2003146917	A	20030521	JP 2001-342791	20011108
JP 4081647	B2	20080430		
JP 2003282538	A	20031003	JP 2002-81893	20020322
JP 3960095	B2	20070815		
EP 1453082	A1	20040901	EP 2002-775447	20021031
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1613143	A	20050504	CN 2002-826800	20021031
RU 2310948	C2	20071120	RU 2004-117212	20021031
KR 810954	B1	20080310	KR 2004-706815	20040504
US 20050092240	A1	20050505	US 2004-493225	20041115
US 7341764	B2	20080311		
US 20080139855	A1	20080612	US 2008-7522	20080111
PRIORITY APPLN. INFO.:			JP 2001-342791	A
				20011108
			JP 2002-81893	A
				20020322
			WO 2002-JP11360	W
				20021031
			US 2004-493225	A3
				20041115

OTHER SOURCE(S): MARPAT 138:361441

AB A gas for plasma reaction comprises a C5-6 perfluoroalkyne, preferably perfluoro-2-pentyne. This gas is suitable for use in the formation of a fine

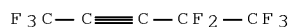
pattern by dry etching, thin-film CVD, or ashing. It is synthesized by contacting a dihydrofluoroalkane compound or monohydrofluoroalkene compound with a basic compound

IT 378-22-3P

RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (C5F8 plasma reaction gas; gas for plasma reaction, process for producing the same, and use)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

CC 76-11 (Electric Phenomena)

ST perfluoroalkyne plasma reaction gas etching CVD  
ashing; perfluoropentyne plasma reaction gas  
etching CVD ashing

IT Sputtering

(etching, reactive, for fine patterning, reactive gases; gas for plasma reaction, process for producing the same, and use)

IT Alkenes, reactions

RL: RCT (Reactant); RACT (Reactant or reagent) (fluoro, monohydro-, reaction with base compds.; gas for plasma reaction, process for producing the same, and use)

IT Alkanes, reactions

RL: RCT (Reactant); RACT (Reactant or reagent) (fluoro, reaction with base compds.; gas for plasma reaction, process for producing the same, and use)

IT Alkynes

RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (halo, perfluoroalkynes, plasma gas reactants; gas for plasma reaction, process for producing the same, and use)

IT Reaction

(plasma, reactant gases for; gas for plasma reaction, process for producing the same, and use)

IT Ashing

Ion sources

Vapor deposition process

(plasma; gas for plasma reaction, process for producing the same, and use)

IT Etching

(sputter, reactive, for fine patterning, reactive gases; gas for plasma reaction, process for producing the same, and use)

IT 378-22-3P

RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (C5F8 plasma reaction gas; gas for plasma reaction, process for producing the same, and use)

IT 138495-42-8, 1,1,1,2,3,4,4,5,5,5-Decafluoropentane

RL: RCT (Reactant); RACT (Reactant or reagent) (gas for plasma reaction, process for producing the same, and use)

August 4, 2008

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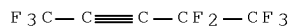
IT 7631-86-9, Silica, processes  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)  
(plasma etching/CVD of; gas for plasma reaction, process for producing the same, and use)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2002:368797 HCAPLUS Full-text  
DOCUMENT NUMBER: 136:378597  
TITLE: Dry etching gas and process for dry etching  
INVENTOR(S): Nakamura, Shingo; Itano, Mitsushi  
PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan  
SOURCE: PCT Int. Appl., 22 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
WO 2002039494	A1	20020516	WO 2001-JP9769	20011108
W: JP, KR, US TW 290741	B	20071201	TW 2001-90127786	20011108
US 20040035825	A1	20040226	US 2003-415647	20030506
PRIORITY APPLN. INFO.:			JP 2000-341110	A 20001108
			WO 2001-JP9769	W 20011108

AB A dry etching gas for fabrication of fine circuit boards comprises a compound having a CF<sub>3</sub>C≡C-CF<sub>2</sub>-CF<sub>3</sub> moiety. The etchant gas is environmentally acceptable and suitable for precision fabrication of fine circuit boards.

IT 378-22-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(etchant; dry etching gas and process for dry etching)  
RN 378-22-3 HCAPLUS  
CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

August 4, 2008

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ICS H01L021-768; C23F004-00  
CC 76-11 (Electric Phenomena)  
ST trifluoromethyl ethynyl etchant dry etching  
circuit board fabrication  
IT Etching  
(dry; dry etching gas and process for dry  
etching)  
IT Printed circuit boards  
(fabrication of, etchant gas for; dry  
etching gas and process for dry etching  
)  
IT Ethynylation  
(trifluoromethyl ethynyl group containing compds.; dry  
etching gas and process for dry etching  
)  
IT 116-14-3, uses 116-15-4 360-89-4  
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant  
or reagent); USES (Uses)  
(etchant additive; dry etching gas  
and process for dry etching)  
IT 378-22-3 692-50-2 20174-11-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(etchant; dry etching gas and  
process for dry etching)  
IT 7440-21-3, Silicon, properties  
RL: DEV (Device component use); PEP (Physical, engineering or  
chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(substrate, etching of; dry etching  
gas and process for dry etching)  
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L19 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2002:185482 HCAPLUS Full-text  
DOCUMENT NUMBER: 136:255880  
TITLE: Dry etching gas and method  
for dry etching  
INVENTOR(S): Hirose, Masataka; Nakamura, Shingo; Itano,  
Mitsushi; Aoyama, Hirokazu  
PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan  
SOURCE: PCT Int. Appl., 18 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
WO 2002021586	A1	20020314	WO 2001-JP7678	200109 05
W: JP, KR, US TW 507289	B	20021021	TW 2001-90122127	200109 06
US 20040011763	A1	20040122	US 2003-362973	200303

PRIORITY APPLN. INFO.: JP 2000-271709 A 06  
200009  
07  
WO 2001-JP7678 W  
200109  
05

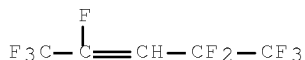
AB A dry etching gas which comprises a compound having a CF<sub>3</sub>CF fragment directly bonded with a double bond (provided that the compound is exclusive of CF<sub>3</sub>CF=CFCF=CF<sub>2</sub>). Said dry etching gas permits the formation of a pattern such as a contact hole which has a high aspect ratio.

IT 86154-61-2

RL: NUU (Other use, unclassified); PRP (Properties); RCT (Reactant);  
RACT (Reactant or reagent); USES (Uses)  
(etchant; dry etching gas and  
method for dry etching)

RN 86154-61-2 HCAPLUS

CN 2-Pentene, 1,1,1,2,4,4,5,5,5-nonafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

CC 76-11 (Electric Phenomena)

ST fluorocarbon fluoroalkene etchant dry etching

IT Alkenes, properties

Hydrocarbons, properties

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(fluoro, etchants; dry etching gas  
and method for dry etching)

IT 116-15-4 360-89-4 754-12-1 760-42-9 2070-70-4 2252-83-7

70002-97-0 72804-49-0 86154-61-2 403855-46-9

403855-47-0 403855-48-1 403855-49-2 403855-50-5 403855-51-6

RL: NUU (Other use, unclassified); PRP (Properties); RCT (Reactant);  
RACT (Reactant or reagent); USES (Uses)

(etchant; dry etching gas and  
method for dry etching)

IT 7631-86-9, Silica, properties

RL: NUU (Other use, unclassified); PEP (Physical, engineering or  
chemical process); PRP (Properties); PROC (Process); USES (Uses)

(etching of, etchants for; dry  
etching gas and method for dry etching  
)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

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L20 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2008:673125 HCAPLUS Full-text

DOCUMENT NUMBER: 149:22811

TITLE: Fluorocarbon film forming method by plasma  
sputtering, film forming apparatus, storage

INVENTOR(S): medium and semiconductor device  
 Horigome, Masahiro  
 PATENT ASSIGNEE(S): Tokyo Electron Limited, Japan  
 SOURCE: PCT Int. Appl., 42pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2008066172	A1	20080605	WO 2007-JP73227	20071130
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM JP 2008140998 A 20080619 JP 2006-326041				
				20061201
PRIORITY APPLN. INFO.:				20061201
JP 2006-326041				A

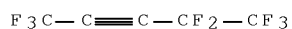
AB A film forming method is provided with a step of placing a substrate on a placing section in a processing chamber; a step of supplying inside the processing chamber with a gas to be excited by microwaves for generating plasma; a step of vacuum-exhausting inside the processing chamber; and a step of supplying inside the processing chamber with C5F8 gas. The gas inside the processing chamber is brought into the plasma state by supplying inside the processing chamber with microwaves from a planar antenna member, which is arranged on an upper part of the processing chamber to face the placing section and has many slits along the circumference direction, and a fluorine-added carbon film is formed on the substrate with the gas brought into the plasma state. High frequency power is applied to the placing section while forming the fluorine-added carbon film on the substrate so that a biasing high frequency power of 0.32W/cm<sup>2</sup> or less is applied on the substrate per unit area.

IT 378-22-3

RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)  
 (gas used in fluorocarbon film forming method by plasma sputtering)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)





CC 76-3 (Electric Phenomena)  
IT 378-22-3 559-40-0, 1,2,3,3,4,4,5,5-Octafluoro-1-cyclopentene 3109-88-4  
RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)  
(gas used in fluorocarbon film forming method by plasma sputtering)  
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

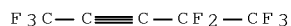
L20 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2005:1282053 HCAPLUS Full-text  
DOCUMENT NUMBER: 144:29498  
TITLE: Gas-barrier multilayer films with good adhesion to inorganic films and electroluminescent devices therewith  
INVENTOR(S): Fujii, Yoshinori  
PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2005335067	A	20051208	JP 2004-152761	20040524
PRIORITY APPLN. INFO.:				20040524
				20040524

AB The films consist of transparent resin substrates and multilayer gas-barrier films having organic films and metal (compound) films, where the substrate surface have F atoms and the organic films are formed from F compds. and optionally (semi)metals or their compds. The organic films, preferably deposited by CVD, may show water absorption  $\leq 0.1\%$ . Electroluminescent devices having the films as gas-barrier films on top electrode layers or employing the same as flexible backplanes, are further claimed.

IT 378-22-3, Octafluoro-2-pentyne  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(CVD source; gas-barrier films having surface-fluorinated substrates and (semi)metal-containing organic films for LED)

RN 378-22-3 HCAPLUS  
CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM B32B027-30

ICS B32B009-00; H05B033-02; H05B033-04; H05B033-14  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 38  
 IT 78-10-4, Tetraethoxysilane 378-22-3, Octafluoro-2-pentyne  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (CVD source; gas-barrier films having surface-fluorinated substrates and (semi)metal-containing organic films for LED)

L20 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:161116 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:231249  
 TITLE: Semiconductor device, method for manufacturing semiconductor device, and gas for plasma CVD  
 INVENTOR(S): Ohmi, Tadahiro; Kobayashi, Yasuo; Kawamura, Kohei; Teramoto, Akinobu; Sugimoto, Tatsuya; Yamada, Toshiro; Tanaka, Kimiaki  
 PATENT ASSIGNEE(S): Tokyo Electron Limited, Japan; Zeon Corporation  
 SOURCE: PCT Int. Appl., 36 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005017991	A1	20050224	WO 2004-JP11595	20040812
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1655772	A1	20060510	EP 2004-771570	20040812
R: DE, FR, GB, IT, NL				
CN 1868044	A	20061122	CN 2004-80030545	20040812
KR 762031	B1	20070928	KR 2006-703117	20060214
US 20060264059	A1	20061123	US 2006-568461	20060215
PRIORITY APPLN. INFO.:			JP 2003-293739	A

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JP 2003-293862

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200308  
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JP 2003-311555

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200309  
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WO 2004-JP11595

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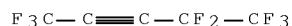
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AB A semiconductor device having an insulating film comprising a F-doped C film having experienced a thermal history under a temperature of 420° or less is described, which is characterized in that the F-doped C film has a H atom content of 3 atomic% or less before the experience of the thermal history.

IT 378-22-3, Octafluoro-2-pentyne  
RL: NUU (Other use, unclassified); USES (Uses)  
(semiconductor device, method for manufacturing semiconductor device, and source gas for plasma CVD)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-314

CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 75

IT 378-22-3, Octafluoro-2-pentyne 559-40-0,  
Octafluorocyclopentene 685-63-2, Hexafluoro-1,3-butadiene  
RL: NUU (Other use, unclassified); USES (Uses)  
(semiconductor device, method for manufacturing semiconductor device, and source gas for plasma CVD)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

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L21 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:443578 HCAPLUS Full-text

DOCUMENT NUMBER: 144:459337

TITLE: Plasma processing method

INVENTOR(S): Honda, Masanobu

PATENT ASSIGNEE(S): Tokyo Electron Limited, Japan

SOURCE: U.S. Pat. Appl. Publ., 18 pp.  
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

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US 20060096952	A1	20060511	US 2005-266232	20051104
JP 2006156992	A	20060615	JP 2005-319316	20051102
CN 1790613	A	20060621	CN 2005-10117383	20051103
PRIORITY APPLN. INFO.:		JP 2004-321872	A	20041105
		US 2004-635620P	P	20041214

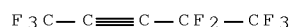
AB Disclosed is a plasma processing method for processing a target object by using a plasma of a process gas containing a fluorocarbon compound. Used is a fluorocarbon compound having at least one triple bond within the mol. and at least one CF<sub>3</sub> group bonded by a single bond to the carbon atom forming the triple bond with the adjacent carbon atom such as 1,1,1,4,4,4-hexafluoro-2-butyne or 1,1,1,4,4,5,5,5-octafluoro-2-pentyne.

IT 378-22-3, 1,1,1,4,4,5,5,5-Octafluoro-2-pentyne  
 RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(etchant; plasma processing method for etching layer in semiconductor fabrication using fluorocarbons)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



INCL 216067000; 216041000; 216079000; 700266000

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 56

ST plasma processing fluorocarbon etching

IT Semiconductor device fabrication

(plasma processing method for etching layer in semiconductor fabrication using fluorocarbons)

IT Etching

(plasma; plasma processing method for etching layer in semiconductor fabrication using fluorocarbons)

IT 378-22-3, 1,1,1,4,4,5,5,5-Octafluoro-2-pentyne 692-50-2, 1,1,1,4,4,4-Hexafluoro-2-butyne

RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(etchant; plasma processing method for etching layer in semiconductor fabrication using fluorocarbons)

IT 7631-86-9, Silica, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(etching of surface oxide; plasma processing method for

etching layer in semiconductor fabrication using  
fluorocarbons)

L21 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:426092 HCAPLUS Full-text

DOCUMENT NUMBER: 142:491907

TITLE: Plasma processing method with organic resist on  
substrate surface

INVENTOR(S): Yamaguchi, Tomoyo; Fuse, Takashi; Fujimoto,  
Kiwamu; Honda, Masanobu; Nagaseki, Kazuya; Koh,  
Akiteru; Enomoto, Takashi; Ito, Hiroharu;  
Kitamura, Akinori

PATENT ASSIGNEE(S): Tokyo Electron Limited, Japan

SOURCE: U.S. Pat. Appl. Publ., 45 pp., Cont.-in-part of  
U.S. Ser. No. 607,537, abandoned.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 20050103748	A1	20050519	US 2004-959152	200410 07
CN 101093796	A	20071226	CN 2007-10140293	200306 24
CN 101154569	A	20080402	CN 2007-10140294	200306 24
PRIORITY APPLN. INFO.:			JP 2002-187422	A 200206 27
			JP 2002-214628	A 200207 24
			JP 2002-271588	A 200209 18
			JP 2002-271589	A 200209 18
			US 2002-420788P	P 200210 24
			US 2002-423566P	P 200211 05
			JP 2003-3540	A 200301 09

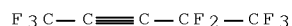
JP 2003-110225 A 200304  
15  
JP 2003-151416 A 200305  
28  
US 2003-607537 B2 200306  
27  
CN 2003-815028 A3 200306  
24

AB An object of the present invention is to provide a plasma processing method, which can improve the etching resistance of an organic layer, such as an ArF photoresist layer, without incurring a decrease in yield, a decrease in throughput, or an increase in cost. A plasma processing method includes a step of preparing a process subject having an organic layer on a surface thereof, and a step of irradiating the process subject with H<sub>2</sub> plasma to improve plasma resistance of the organic layer.

IT 378-22-3, 1,1,1,4,4,5,5,5-Octafluoro-2-pentyne  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(hydrogen plasma processing method with organic resist on substrate surface)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM C23F001-00

INCL 216067000

CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 74

IT Etching  
(plasma; hydrogen plasma processing method with organic resist on substrate surface)

IT 75-10-5, Difluoromethane 378-22-3, 1,1,1,4,4,5,5,5-Octafluoro-2-pentyne 409-21-2, Silicon carbide (SiC), processes 593-53-3, Methyl fluoride 7440-21-3, Silicon, processes 7631-86-9, Silica, processes  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(hydrogen plasma processing method with organic resist on substrate surface)

L21 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:533909 HCAPLUS Full-text

DOCUMENT NUMBER: 141:97889

TITLE: Method for fabricating semiconductor device

INVENTOR(S): Lee, Sung-kwon; Kim, Sang-ik; Sun, Jun-hyeub

August 4, 2008

10/520,272

23

PATENT ASSIGNEE(S): Hynix Semiconductor Inc., S. Korea  
SOURCE: U.S. Pat. Appl. Publ., 10 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 20040127052	A1	20040701	US 2003-617226	20030711
US 7052999	B2	20060530		
KR 2004057485	A	20040702	KR 2002-84234	20021226
PRIORITY APPLN. INFO.:			KR 2002-84234	A 20021226

AB A method for fabricating a semiconductor device capable of decreasing a parasitic capacitance to thereby increase a cell capacitance. To achieve this effect, the deposited 3rd inter-layer insulation layer is planarized and is subjected to a wet etching process to make its height lower than that of the bit line. Afterwards, the nitride-based etch stop layer is formed on the etched 3rd inter-layer insulation layer, and then, the contact hole for forming the storage node contact plug is formed in between the bit lines through the SAC process so that the etch stop layer does not remain at sidewalls of the bit line. From this structure, it is possible to decrease the parasitic capacitance, and this decrease further provides an effect of increasing the cell capacitance.

IT 378-22-3  
RL: NUU (Other use, unclassified); USES (Uses)  
(method for fabricating semiconductor device)  
RN 378-22-3 HCAPLUS  
CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)

F3C—C≡C—CF2—CF3

IC ICM H01L021-311  
INCL 438700000  
CC 76-3 (Electric Phenomena)  
IT 75-10-5, Difluoromethane 75-46-7, Trifluoromethane 76-19-7,  
Perfluoropropane 116-14-3, Perfluoroethene, uses 354-33-6,  
Pentafluoroethane 378-22-3 593-53-3, Monofluoromethane  
685-63-2, Hexafluoro-1,3-butadiene 7440-37-1, Argon, uses  
7782-44-7, Oxygen, uses 11070-66-9, Perfluorobutene 268566-74-1  
RL: NUU (Other use, unclassified); USES (Uses)  
(method for fabricating semiconductor device)  
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L21 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:21030 HCAPLUS Full-text

August 4, 2008

10/520,272

24

DOCUMENT NUMBER: 140:86074  
 TITLE: Plasma processing method  
 INVENTOR(S): Yamaguchi, Tomoyo; Fuse, Takashi; Fujimoto, Kiwamu; Honda, Masanobu; Nagaseki, Kazuya; Koh, Akiteru; Enomoto, Takashi; Ito, Hiroharu; Kitamura, Akinori  
 PATENT ASSIGNEE(S): Tokyo Electron, Limited, Japan  
 SOURCE: PCT Int. Appl., 115 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
WO 2004003988	A1	20040108	WO 2003-JP7960	20030624
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003244166	A1	20040119	AU 2003-244166	20030624
CN 1663030	A	20050831	CN 2003-815028	20030624
CN 101093796	A	20071226	CN 2007-10140293	20030624
CN 101154569	A	20080402	CN 2007-10140294	20030624
PRIORITY APPLN. INFO.:			JP 2002-187422	A 20020627
			JP 2002-214628	A 20020724
			JP 2002-271588	A 20020918
			JP 2002-271589	A 20020918



US 2002-420788P P 200210  
24

US 2002-423566P P 200211  
05

JP 2003-3540 A 200301  
09

JP 2003-110225 A 200304  
15

JP 2003-151416 A 200305  
28

CN 2003-815028 A3 200306  
24

WO 2003-JP7960 W 200306  
24

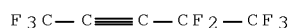
AB A plasma processing method is described, which comprises the step of providing an element to be processed having an organic layer on the surface thereof, and the step of applying H<sub>2</sub> plasma to the element to be processed to improve the plasma-resistance of the organic layer.

IT 378-22-3

RL: NUU (Other use, unclassified); USES (Uses)  
(C5F<sub>8</sub>; plasma processing method by hydrogen plasma)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)



IC ICM H01L021-3065

CC 76-11 (Electric Phenomena)

IT Etching

(plasma; plasma processing method by hydrogen plasma)

IT 378-22-3

RL: NUU (Other use, unclassified); USES (Uses)  
(C5F<sub>8</sub>; plasma processing method by hydrogen plasma)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L21 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:505376 HCAPLUS Full-text

DOCUMENT NUMBER: 137:71463

TITLE: Method of forming integrated circuitry and  
method of forming shallow trench isolation in a  
semiconductor substrate

August 4, 2008

10/520,272

26

INVENTOR(S): Trapp, Shane J.  
 PATENT ASSIGNEE(S): Micron Technology, Inc., USA  
 SOURCE: U.S. Pat. Appl. Publ., 7 pp., Cont.-in-part of  
 U.S. Ser. No. 752,685.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 20020086543	A1	20020704	US 2001-920978	200108 01
US 6897120	B2	20050524		
US 20020123226	A1	20020905	US 2001-752685	200101 03
US 7202171	B2	20070410		
PRIORITY APPLN. INFO.:			US 2001-752685	A2 200101 03

AB A method of forming integrated circuitry includes forming a silicon nitride comprising layer over a semiconductor substrate. At least a portion of the silicon nitride comprising layer is etched using an etching chemical comprising ammonia and at least one fluorocarbon. A method of forming shallow trench isolation in a semiconductor substrate includes depositing a silicon nitride comprising layer over a bulk semiconductor substrate. A photoresist comprising masking layer is formed over the silicon nitride comprising layer. The photoresist comprising masking layer is patterned effective to form a plurality of shallow trench mask openings therethrough. The silicon nitride comprising layer is etched through the mask openings substantially selectively relative to the photoresist using an etching chemical comprising ammonia and at least one fluorocarbon.

IT 378-22-3

RL: RCT (Reactant); RACT (Reactant or reagent)

(method of forming integrated circuitry and method of forming shallow trench isolation in a semiconductor substrate)

RN 378-22-3 HCAPLUS

CN 2-Pentyne, 1,1,1,4,4,5,5,5-octafluoro- (CA INDEX NAME)

F3C—C≡C—CF2—CF3

IC ICM H01L021-461

ICS H01L021-76; H01L021-302

INCL 438706000

CC 76-3 (Electric Phenomena)

ST fluorocarbon etching shallow trench isolation  
 semiconductor substrate integrated circuit

IT Etching

Integrated circuits

Photoresists

Semiconductor device fabrication

Semiconductor devices

(method of forming integrated circuitry and method of forming shallow trench isolation in a semiconductor substrate)

IT 75-10-5, Difluoromethane 75-46-7, Trifluoromethane 75-73-0, Carbon fluoride (CF<sub>4</sub>) 76-16-4 76-19-7 115-25-3, Carbon fluoride (C<sub>4</sub>F<sub>8</sub>) 378-22-3 685-63-2 7664-41-7, Ammonia, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(method of forming integrated circuitry and method of forming shallow trench isolation in a semiconductor substrate)

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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